STATEMENT OF BASIS

LANDFILL NO. 5
SOLID WASTE MANAGEMENT UNIT NO. 26
45TH SPACE WING
PATRICK AIR FORCE BASE
BREVARD COUNTY, FLORIDA

PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at the Landfill No. 5 (LF-5). A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of United States Air Force (USAF), United States Environmental Protection Agency (USEPA), the State of Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and protective of human health and the environment. However, prior to implementation of the proposed remedy, the 45th SW IRP team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

Brief Site Description

LF-5 is an inactive landfill located on the west side of PAFB. It encompasses approximately 25 acres (See Figure 1). Cafeteria and office refuse, in addition to industrial waste were disposed at LF-5.

WHY IS CLEANUP NEEDED?

The results of the Remedial Investigation (RI) indicated that several metals were present in groundwater and surface water at levels that could be potentially harmful to human health if this water was used for human consumption or recreation. However, a long-term monitoring program was initiated immediately following the RI, and documented the successful reduction of the metal concentrations to levels below the clean-up criteria. Following completion of the LTM program, there are no longer any remaining risks or hazards associated directly with any of the environmental media at LF-5, however there are inherent risks associated with any landfill that require maintenance of the landfill's integrity and avoiding contact with or release of landfill contents.

The Clean-up Remedy

The proposed clean-up remedy for LF-5 includes (but is not limited to) the following components:

- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
  - Prohibition of residential development
  - Posting warning signs on-site
  - Quarterly visual inspections to ensure landfill condition remains unchanged

A complete list of land use controls and other protective measures are found in the LF-5 Land Use Control Implementation Plan (LUCIP).

In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for PAFB Landfill No. 5. For detailed information, consult the Landfill No. 5 RI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-suppport.org/45SW_IRP_EA.

HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy. The final remedy for LF-5 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Patrick Air Force Base (PAFB).

The public comment period for this SB and the proposed remedy will begin on the date that a notice of the SB's availability is published in a major local newspaper of general circulation. The public comment period will end 45 days thereafter. If requested during the comment period, the 45th SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit , the SB, and the associated Administrative Record, including the RI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and LF-5 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, Fl, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street
Patrick Air Force Base, FL 32925-3343
E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

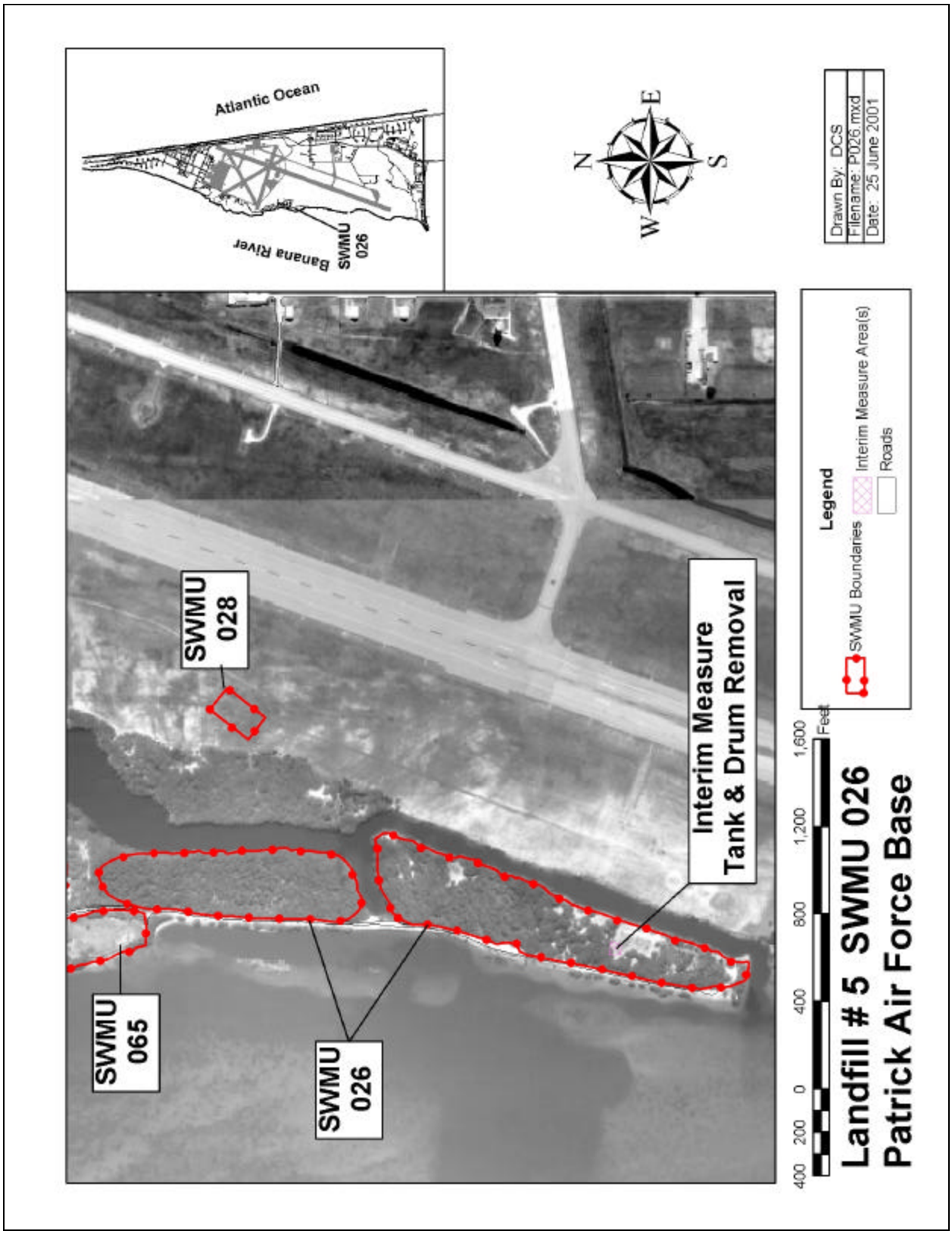
Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. Historically, the National Aeronautics and Space Administration (NASA) also performed space launch related operations on the 45th SW property. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (PAFB Permit No. FL257002404) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Units (SWMU) No. 26, LF-5.

SITE DESCRIPTION AND HISTORY

LF-5 is an inactive landfill located on the west side of PAFB (See Figure 1). The site is located on a peninsula bound to the west by the Banana River and the east and south by the Survival Canal. The site is 25 acres in area and consists of two separate sections joined by a



In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for PAFB Landfill No. 5. For detailed information, consult the Landfill No. 5 RI Report which is available for review at the 45th SW Environmental Management O ffice (See "How Do You Participate") or on-line at http://www.mission-suppport.org/45SW_IRP_EA.

road along the western edge of the site.

LF-5 reportedly operated as a trench-and-fill landfill from 1962 to 1972. Available information indicates that principally cafeteria and office refuse, in addition to industrial waste were disposed at the landfill. The industrial wastes included waste motor oil, paint shop residues, transformer fluid filters, unrinsed pesticide containers, asbestos, and drums of unknown material. Additionally, waste degreasing solvents and waste oils containing trace levels of metals were commonly mixed and disposed at LF-5. Prior to 1962, LF- 5 and the area immediately to the north were filled with construction and demolition material due to the low and swampy nature of the area. The landfill is presently covered with dredged materials (principally sands) from the Banana River, and is vegetated with low grasses, shrubs, and trees.

The USAF has conducted the following investigations:

- 1984: A Phase I Records Search including records review, site reconnaissance, and interviews with knowledgable aerospace personnel identified areas of concerns which warranted further investigation.
- 1986-1988: A Phase II Confirmation/ Quantification investigation was conducted, during which groundwater, surface water and sediment samples were collected. This investigation concluded that the presence of constituents in groundwater, surface water, and sediment might pose a risk to human health and the environment. The Phase II investigation recommended that a Phase III Investigation [Remedial Investigation (RI)] be conducted to assess the nature and extent of the contamination present at the site, and perform risk assessments to determine if the contamination is detrimental to human or ecological health.
- 1988-1997: The RI was initiated in 1988 and documented in a report that also addressed a number of other Sites. This RI was unable to adequately characterize and assess the contamination at LF-5. Consequently, a more robust RI was initiated in 1994 and detailed the sampling and analysis of site soil, groundwater, surface water, and sediment. These results were used to determine human health and ecological risks. The Human Health Risk Assessment (HHRA) indicated that potential risk exists from the site's groundwater and surface water. The Ecological Risk Assessment (ERA) indicated that no unacceptable ecological risk is present at the site.
- 1996-1997: A Feasibility Study (FS) was performed in order to select the appropriate remedy for the site. It was determined that monitoring of groundwater would be needed to ensure that contaminant levels are naturally attenuating in the subsurface and that land use controls would be implemented to ensure that human health would be protected from unacceptable exposure to site groundwater, surface water, and landfill contents.
- 1997-1998: A Long Term Monitoring (LTM) Workplan was submitted in 1997 and LTM was initiated. The 45th SW IRP team felt it was incumbent to implement LTM immediately following the RI/FS in order to ensure that groundwater contaminants were appropriately monitored and tracked. After one year of quarterly monitoring, contaminant levels were successfully reduced below the clean-up criteria, and the LTM program was concluded.

SUMMARY OF SITE RISK

As part of the RI activities, an HHRA and an ERA were conducted to estimate the health and environmental risks associated with the site-specific contamination. The risk assessments were performed in accordance with risk management decision processes established by

the USEPA, FDEP, and the USAF at the time the RI was initiated.

The Chemicals of Concern (COCs) identified for human health during the RI were:

- Groundwater: antimony, selenium
- Surface water: antimony

Sediment at the LF-5 was not addressed in the HHRA based on incomplete exposure pathways for all potential receptors. The HHRA evaluated exposure of base personnel to soils and exposure of child and adult recreators to soil, surface water, and fish ingestion. Groundwater was evaluated by a direct comparison with screening values, since groundwater was not considered to have a likely exposure pathway for any of the receptors that were assessed.

Soil and fish ingestion were not found to pose an unacceptable risk or hazard to potential receptors. The noncarcinogenic hazard associated with child recreator exposure to surface water slightly exceeded the hazard index target of 1.0. This was almost entirely due to antimony.

Groundwater was also found to pose a potential risk to receptors. Although six compounds exceeded risk screening values, four of these compounds were eliminated as a potential concern based on risk management information. One of the compounds was below the Maximum Contaminant Level (MCL) established by USEPA, while the other three were detected in one sampling round only, and could not be replicated in later sampling events. The remaining two COCs were antimony and selenium.

A long term monitoring program was initiated following the RI in order to monitor surface water and groundwater for these compounds. After one year (four quarters) of sampling, USEPA and FDEP approved discontinuation of the long term monitoring program based on three consecutive quarters of data below MCLs. Based on successful conclusion of the LTM program, there are no longer any unacceptable human health risks or hazards posed by LF-5, other than the inherent risks associated with any landfill that require maintenance of the landfill cap's integrity and avoiding contact with or release of landfill contents.

The ERA was conducted to evaluate the possibility that land and aquatic organisms (eco-receptors) may be at risk from site-related contaminants. The ERA was based on laboratory analyses of groundwater, soil, urface water, and sediment samples.

The ERA concluded that potential risk from the exposure to and/or ingestion of groundwater, soil, surface water, or sediment by eco-receptors is marginal. Several factors mitigate the potential concern. These could include routine facility operation and maintenance activities, less than optimal habitat found within facility boundaries, the extent of the eco-receptor's normal foraging area, and the seasonal variability associated with the amount of surface water present at any given time.

WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objective (RAO) is to protect humans and the environment from exposure landfill contents. As discussed in the section entitled "Summary of Site Risk", those compounds initially identified as COCs were reduced to levels below the clean-up criteria in the interval between completion of the FS and the SB. However, inherent risks associated with any landfill require periodic monitoring to ensure site conditions do not change, maintenance of the landfill's integrity and the soil cap, and avoiding contact with or release of landfill contents.

CLEANUP ALTERNATIVES FOR LANDFILL NO. 5

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove, and/or treat contamination in order to protect public health and the environment. Only

two alternatives were considered because of the nature of LF-5. The alternatives considered for the LF-5 are summarized below.

No Action: Evaluation of the No-Action alternative is used as a basis for comparison with other alternatives. Under this alternative, no additional remedial action would be taken to maintain site control or restrict site use. It was determined this alternative would not attain the RAO.

Land Use Controls: Under this alternative, site-specific land use controls would be put in place to ensure that landfill integrity and the soil cap are maintained, that landfill materials are not contacted or released without proper notification and coordination with the regulatory agencies, and that construction on the landfill is restricted. In the long term, this remedy alternative will meet the RAO and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change if necessary. The 45th SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be managed at the 45th SW. The MOA requires periodic inspections, condition certification, and construction project coordination and agency notification. Site-specific details can be found in the LF-5 Land Use Control Implementation Plan (LUCIP).

EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and
- Comply with standards for management of wastes

The second alternative (Land Use Controls) meets each of the above criteria, while the no action alternative remedy would not meet them.

LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, PAFB, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on PAFB's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the local community. LF- 5 is currently undeveloped. Residential use of the LF-5 is not occurring nor is it expected in the future. As long as PAFB

continues to support the Space Program, LF-5 is expected to remain an industrial setting.

WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because although site media have been documented to be below the designated clean-up criteria, it is still necessary to maintain land use controls on a landfill in order to ensure that unacceptable and potentially hazardous development, construction, or penetration do not occur in the future. Such actions could potentially impact the integrity of the landfill, resulting in contact with or the release of land-filled material. The proposed remedy meets the four general standards for corrective measures.

NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the PAFB HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then land use controls will be initiated and a LUCIP will be developed and incorporated into the MOA.

LAND USE CONTROL IMPLEMENTATION PLAN

LANDFILL NO. 5
SOLID WASTE MANAGEMENT UNIT NO. 26
45TH SPACE WING
PATRICK AIR FORCE BASE
BREVARD COUNTY, FLORIDA

Facility Description

Landfill No. 5 (LF-5), Solid Waste Management Unit 26 (SWMU No. 26), is located on the west side of Patrick Air Force Base (PAFB) on a peninsula bound to the west by the Banana River and to the east and south by Survival Canal. The landfill is approximately 25 acres in areas and consists of two separate sections joined by a road along the western edge of the site. LF-5 is currently inactive. During operation from 1962 to 1972, the landfill was maintained as a trench and fill landfill. Prior to 1962, LF-5 and the areas immediately north of the site were filled with construction and demolition material as this area was low and swampy. Subsequent to completion of operations, the landfill was covered with dredged materials (principally sands) from the Banana River and associated watercourses.

Location (Reference Site Map on last page of this document)

Site Plan Coordinate	Northing	Easting
North	1418063.56	780183.81
South	1415318.34	779648.15
East	1415050.52	779782.07
West	1416749.54	780376.31

Objective

Implementation of site-specific land use controls to prevent exposure of hypothetical future residents to the soil and prevent uncontrolled contact with landfill contents.

Land Use Controls (LUCs) to be Implemented:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and assessments could be required for the United States Air Force (USAF). Based on these analyses, the potential for additional remedial measures may be required prior to land use change.

Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including: the 45 SW Land Use Controls Operation Plan; the PAFB HSWA Permit; a complete record of corrective actions at Landfill No. 5; or other related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via the IRP website at http://www.mission-support.org/45SW_IRP_EA

- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current PAFB Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
  a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
  b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.

Soil:

- Soils will not be disturbed or moved during property development, maintenance or construction, without:
  a) USAF review, coordination, and approval of the proposed construction/ development plans via AF Form 103 (Base Civil Engineering Work Clearance request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
  b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to off-site disposal; and
  c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the PAFB Hazardous and Solid Waste Amendments (HSWA) Permit.
- The site will include a fence or other similar control features to exclude trespassers in accordance with 45th SW LUC Operations Plan.
- The AF will initiate and maintain a habitat enhancement program in accordance with requirements outlined in the RCRA Facility Investigation and summarized in the 45th SW LUC Operations Plan.

LUCIP
LF-5 (SWMU NO. 26)
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OCT 2001

Landfill:

- Due to the presence of a closed landfill, development, maintenance, and construction is restricted without:
  a) USAF review, coordination, and approval of the proposed construction/ development plans via AF Form 103 (Base Civil Engineering Work Clearance request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
  b) Ensuring proper engineering controls are in-place so that Landfill cover is not penetrated and landfill contents are not contacted or released. In the event that the Landfill cover is breached, additional remedial measures may be required;
  c) Ensuring proper engineering controls are in-place to address specialized technical concerns relating to Landfill integrity management. These may include: controls for differential settlement, erosion control, surface water run on/off and methane management; and
  d) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.

Statement of Basis:
The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit, scheduled for issuance early in 2002.

Additional Information:

Long Term Monitoring Plan: Long term monitoring (LTM) was implemented to monitor the fate of site related contaminants and to ensure protection of human health and the environment. After one year (four quarters) of sampling, USEPA and FDEP approved discontinuation of the LTM program, based on three consecutive quarters of data below USEPA Maximum Contaminant Levels.

Pertinent Document Reference:

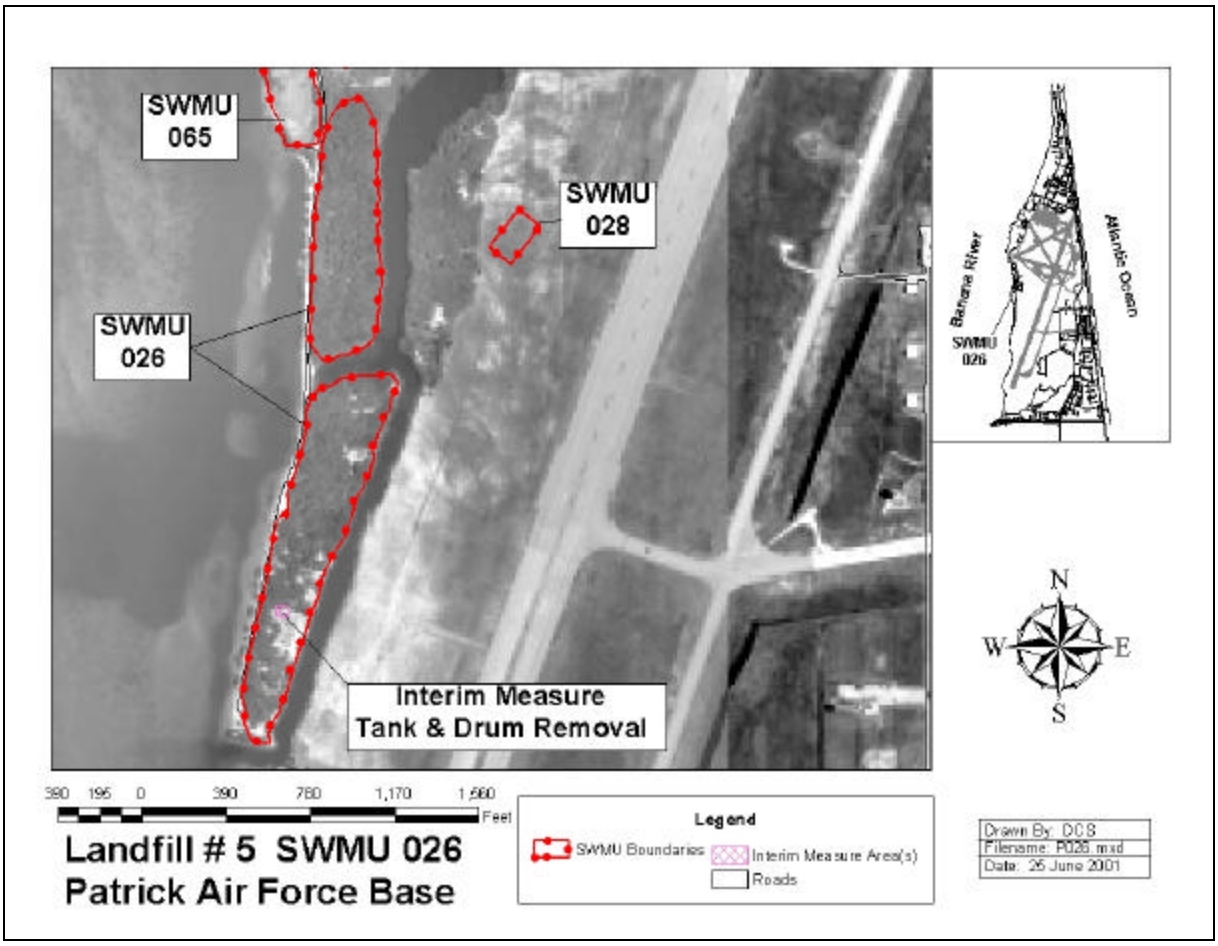
Remedial Investigation/Feasibility Study, Landfill PLF-5, SWMU No. 26, O'Brien & Gere Engineers, Inc., September 1996.

Interim Measures/Long Term Monitoring (IM/LTM) Work Plan, Landfill PLF-5, SWMU No. 26, Parsons Engineering Science, Inc., January 1998.

1997 Annual Long Term Monitoring Report, Landfill PLF-5, SWMU No. 26, Parsons Engineering Science, Inc., October 1997.

LUCIP
LF-5 (SWMU NO. 26)
PATRICK AIR FORCE BASE
OCT 2001

Landfill No. 5 (LF-5) – Site Map



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